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CONVERSATIONAL LECTURE
ON
MINES AND MINING IN COLORADO.
BY
AMASA MCCOY.

MINES AND MINING IN COLORADO:

A

CONVERSATIONAL LECTURE,

DELIVERED IN THE LECTURE ROOM OF CROSBY'S OPERA HOUSE,

TO THE

International Mining and Exchange Company.

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BY

AMASA McCOY.
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"In addition therefore to the natural and laudable love of individual wealth, this further motive is now addressed to our love of country: that the respectable place among the first-class powers, which it secured to the American Republic, to have suppressed so great a Rebellion, will be still further advanced in the eyes of all mankind, by developing the wealth of our gold and silver-bearing mines. And if treasures of silver and gold help to make friends for the Republic in times of peace, they are also those sinews which prepare to make it formidable to its enemies in times of war."



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MINES AND MINING IN COLORADO.

Aware of the close attention which Prof. Amasa McCoy, of this city, had given to the subject of mines for several years, and of his careful personal examination of the mining affairs of Colorado in his visit to the Rocky Mountains, last fall and winter, and attaching great importance to his testimony, the directors of the International Mining and Exchange Company, with a few leading citizens of Chicago, not members, endeavored to call him out by letter, in the form of a public lecture. Ascertaining that he declined to make this the subject of a public address, but that he would gladly serve this Company in a private and conversational way, the board of directors, with a few invited friends and capitalists, lately met for that purpose (Amos T. Hall, President of the Company, presiding) at the Professor's Rooms, in Crosby's Opera House. The remarks and views of Mr. McCoy, on this occasion, were deemed by the board to be of such great general interest and importance, that a resolution was unanimously passed requesting his permission to allow a report of them to be put in a printed form. Having obtained the speaker's consent to this effect, it is with pleasure that the board present the following report of his address in their mining manual—regarding it as not only covering the general ground, but also as of solid value.

MR. PRESIDENT AND GENTLEMEN OF THE BOARD:

One of the forms of objection I have to accepting an invitation to give a public lecture on the subject of my tour to the Rocky Mountains, is this: that an address on such a subject, to a miscellaneous audience, must necessarily deal in vague generalities. When a speaker wishes to influence men to join the army, or to vote to support those who are already there; or to help elect his candidate for the Presidency; or when in a literary address, he wishes to present motives for the cultivation of Knowledge or Literature or Art, he has a specific object to aim at. But in remarks about a country, where many hearers meditate settling or investing; one in one way, and for one reason, and others in other ways, and for entirely different reasons; the

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speaker must needs feel like one who is called upon to fire at random in a flock, and yet is expected to hit each separate bird. It has therefore been much more agreeable and satisfactory to me, to report upon Colorado, in a private, conversational, and entirely informal manner, to citizens who had specific objects in their inquiries. In this way I have answered the questions of several worthy young men who meditated joining the Chicago-Colorado Colony. In this manner I have communicated facts and opinions to some of those excellent friends of Science who have in charge the Richardson foundation for the School of Mines. And now in the same question-and-answer form, it affords me much pleasure to try and serve those capitalists and substantial business men who compose the International Mining and Exchange Company.

Your objects being well-defined, namely: to buy silver-bearing and other mines, and to develop them, both for your own working, and for sale to others, I shall restrict myself to such a line of remark as I think will bear upon your purposes and plans. But you will please to keep in mind, that the very object of abandoning all platform formalities, of keeping my seat, and of reducing this interview, as near as may be, to pure conversation, is to have you intimate by questions, as I go along, what are the precise points that you, either as a body, or as individuals, are most desirous that I should throw light upon. And from the fact that four of your directors, including your President, have studied this country, and its mining operations, with great care, and three of you nearly as lately as I have; you will be able to define with great exactness what points it is that you wish me to correct or confirm your own views upon; or what to try and make more comprehensible and satisfactory to the gentlemen, not stockholders, whom you have invited to listen with you to these remarks.

In addition to the high intellectual and scientific interest which attaches to the formation of these mineral deposits in the earth, and to every process for excavating and utilizing them, and which had previously attracted no little share of my attention to what is said of them in the books and in mining publications, and to what I could gather from such scientists and practical miners as I had occasionally met—my inquiries now on the ground, and among working miners at the mines themselves, were the more diligent and searching, of course, because I was prompted by those practical and pecuniary motives at which you hint in your invitation, and which now actuate yourselves

as an association of business men for business purposes. From the accident of my having been invited, a year or more before I went, by the Miners' and Mechanics' Institute of Central City, to deliver a literary lecture there, and which invitation was afterwards joined in by the Governor and other principal men of the territory; and having lectured accordingly, once in Denver, once in Nevada City, twice in Georgetown, and three times in Central City; I was at once brought in contact with the best sources and circles of information in each of these places. Nor could anything exceed the cordiality and kind-heartedness with which every one aided me, in satisfying my curiosity, in regard to the scenic beauties, and the mineral riches, of the mountains of Colorado, as well as the stock-grazing and agricultural capabilities of its plains. To say nothing of trappers and hunters; pioneers and explorers; tourists, artists and editors; ranch-farmers, graziers and cattle-dealers; but to come to those experts in whom you are more particularly interested, I tested the patience over and over again, of those brave old spirits, the mountain and placer prospectors; of deep underground miners, who had worked tunnels and shafts and drifts in England, in Germany, in old Mexico, in California, and in Nevada; of ore-reducers and mill-men; and metallurgists and geologists. If I except the class of scholars and scientists proper, I never met so much well-informed and soundly-considered thought, in the same number of men, as I did in Colorado; and three busier months I never addressed to any other branch of study. And now the results both of these recent and my former inquiries, you are more than welcome to.

FIRST GENERAL IMPRESSIONS.

If I leave the regions of poetry and sentiment; the new revelations, so novel and strange to me, in the way of pure and exhilarating air; where the atmosphere is so dry and transparent, that game a mile off, looks as if it were but a hundred yards; where meat even under the summer sun, will only dry up, and never taint; where the soldiers who guard the railways, dwell without rheumatism, in "dug outs" in the earth, and horses live without harm in the cellars of stables; the magical blue of the skies, seeming to discover three stars where we see one; the mighty and interminable plains which look like a vast ocean of land asleep; the high-towering and innumerable mountains, where from one stupendous summit, we count in the same

sweep of vision, some seventy others, and which appear as another ocean of rock, where every peak and cliff is a wave, and which is still a sea without its motion, but not now without all of its dizziness—if I leave these and the other thousand and one surprises and sensations which flash upon the spirit, as if from a new heavens and a new earth; and come down to commerce and to business—I report that the first general impression which is left on my mind, after comparing the testimony of all available witnesses, both written and oral, is this: that Colorado, on the whole, and all things considered, is probably the richest silver, and perhaps the richest gold-mining country, in the world. Certain it is, that at the *Exposition Universelle*, held in Paris, in 1867, and where minerals from all countries were exhibited, the first Medal, for silver-bearing mines, was awarded to Colorado.

NATIONAL IMPORTANCE OF OUR MINES.

The importance of this award, as attesting the wealth of our mines, is worthy of a much more general gratulation than it has ever evoked. Indeed, our precious mineral deposits are hardly counted, as yet, among the sources of our national wealth. This can only be accounted for by our extreme youth as a nation, the recentness of our mineral discoveries, the absurd manner in which our people at first attempted to handle them—exceeding the childishness of children with a new bawble or toy—and the consequent disasters and losses which frequently succeeded these wildly-extravagant expectations. Some of these errors and follies, which have thus brought an ancient and greatly useful industry down even to popular contempt, I shall take occasion in the course of my remarks to refer to. This much, however, may be stated here, as an undeniable fact: that in all the older civilizations, much less valuable mines than ours, are held in far higher esteem. As far back into antiquity as written history runs, as far back as the Romans, the Greeks, and even the Egyptians—mining was fostered and pursued as a remunerative and honorable source of individual and general wealth. While with us it has come to be regarded as mere speculation, and of the wildest character at that, I read that among all these ancient peoples, mining was regarded as legitimate and as safe a business as merchandise or banking; and that it ranked next in usefulness to cattle-grazing and the venerable art of agriculture.

itself. It argues a concurring sense of the permanent value of this branch of industry, in all the intermediate ages, that literature has charged itself with transmitting even to the present day, and that with great particularity, the mining processes under the Ptolemies. It is a matter of history also, that for centuries, and that from the working of their mines, the Saxon Kings were the richest monarchs in the world. In Saxony, at this day, in Baden, in Bavaria, in Prussia, in Austria, and in Russia, the mines are under the direct control of the Crown, and form one of the largest and surest sources of government revenue.

While our government has done nothing as yet for scientific knowledge in these arts, the governments of Europe have established well-endowed schools of mining, which are exclusively devoted to the sciences and the arts connected with this industry; and which schools take rank with the other great university departments of law, medicine and divinity. Such government schools of mines exist at Liegé, at St. Etienne, at Przibram, at Leoben, and at St. Petersburg, in Russia. A Royal Academy of Mines was recently established in Berlin; and a school patterned after these continental seminaries was established by the English government, in London, in 1851. The Hungarian government established such a school at Schemnitz, as far back as 1760. No one who has informed himself of the scholastic institutions of Europe, is ignorant of the eminent standing of the Royal Saxon Mining School, at Freiburg, and which has been supported by the Saxon government for a century, and is situated among mines of silver and lead, which that government has worked for six hundred years; nor of the famous academy at Clausthal, in the Hartz Mountains; nor what an honorable rank is everywhere assigned in all these countries to mining engineers, and counselors of mines, among the learned and liberal professions. None of the many institutions of literature, science, or art in France, outrank the celebrated *École des Mines Impérial* of Paris—and this notwithstanding France works only base metal mines, and has no mines of any great value of the precious ores. It has even been said, that the corps of *Ingénieurs des Mines* of France, includes a greater number of names made famous by brilliant scientific achievements, than any other body of scientists in the world.

For want of this very mining knowledge in America, arises this extraordinary fact: that the country of all the earth which attaches least value to its mines, is that very country, which according to the

vote of every other, possesses the richest mines in the world;—so rich, indeed, and so numerous, that if the science of these other countries, were applied to the mines of our own, I entertain no manner of doubt, that an investment equal to the government revenues for a single year, could in ten years, and that without one additional dollar of taxation, be made to pay both the principal and interest of our whole national debt. The mining country where students of the physics have least opportunity to pursue the sciences which underlie this important industry, is the country whose mines already yield a bullion product of eighty millions a year, and that with but little aid from science; and which for want of such science in that production, and through the sheer waste of ignorance, has lost during the past year alone, more millions than would endow ten schools of mines ten times over.

The precious metals are in greater and still greater demand among us, not only for government uses in the way of coin, but for plate purposes and the arts, consequent upon the fast increasing numbers and wealth of our people. Nearly every American baby is now born with a silver spoon in his mouth; he eats his way up through boyhood and youth with a silver knife and fork; and even when as a soldier he goes forth to the wars, greatly to the astonishment of foreign visitors to our armies, he both fights in the field, and cooks eggs, when he can get them, in the camp; by the movements of a gold watch.*

* "Few readers, probably, will be prepared for the statement that, even now, at this early period of our history, there is more solid silver plate owned in the United States than in any other country in the world. Such is, at least, the opinion of some of the largest dealers in the article, and notably that of the President of the Gorham Silver Manufacturing Company, who has traveled extensively in foreign lands for the sole purpose of studying the trade in silverware. Traveled readers will find it difficult to agree with him; for, at the mention of the subject, there will flash upon their memories the spacious side-boards of Europe covered with clumsy and ponderous vessels of silver, under which a side-board of taste might very properly groan."

"There are houses in Europe which exhibit more than a hundred thousand ounces of silver plate to the awe-struck minds of men. * * * The wealthiest country in Europe is Great Britain; but even there, if all the silver, jewels, watches and trinkets were divided equally among the people, each individual would have but four pounds' worth! In France, where the great mass of the population never see gold or silver except in the form of money, the average is said to be something less than a quarter of this sum. In the United States there are no means of ascertaining the quantity of existing precious objects, but it is the deliberate opinion of those who are most conversant with the subject, that we possess, and have in daily use, more silverware than any other people. There are few families among us so poor as not to have a few ounces of silver plate, and forlorn indeed must be the bride who does not receive, upon her wedding-day, some articles made of this beautiful metal. The lavish manner in which we are accustomed to give away silverware at our silver weddings is well known. There was a silver wedding some time ago in Massachusetts, at which about sixteen thousand ounces of silver were presented. * * * When the golden wedding of Commodore Vanderbilt was celebrated a few years ago, there were more than a hundred articles of gold given to the venerable pair."—Article "Silver and Silver Plate," *Harper's Monthly*, September, 1868.

Now if we are to supply these necessities, and to indulge these luxuries, and yet neglect our own mines, and depend upon the importation of all this bullion from abroad, we are of all men both the most miserable and the most foolish, and national debt and bankruptcy are as inevitable as fate. Our jewelers and plate-manufactories are constantly melting up the metallic currency which the Government is coining; and one of the reasons of the high price of gold, of the delay in the return to specie payments, and all the consequent stringencies and disorders in finance and commerce, is an absolute deficiency in the supply of bullion. These evils will be aggravated, or mitigated, according as we neglect or develop our mines. But the demand for the precious metals for these various uses at home, is greatly exceeded by the necessities of our rapidly extending commerce abroad; especially since it is now penetrating those old close-communion populations in the East, like China, Japan and the Indies, and who take coin, and coin only, from all the rest of the world, but who never give a dollar of it back. Thus the demand for still greater and greater supplies of bullion, grows with our growth, and strengthens with our power, as a nation. And thus we see that that is a very narrow view which regards silver and gold as mere personal conveniences, or social luxuries—the truth being, that among every civilized and commercial people, they take rank rather among the national necessities. As our keels are now ploughing every sea under the whole heavens, and our merchants and sailors are visiting every port; so the call for our coin follows everywhere in the wake of our flag. In addition therefore to the natural and laudable love of individual wealth, this further motive is now addressed to our love of country: that the respectable place among the first-class powers, which it secured to the American Republic, to have suppressed so great a Rebellion, will be still further advanced in the eyes of all mankind, by developing the wealth of our gold and silver-bearing mines. And if treasures of silver and gold help to make friends for the Republic in times of peace, they are also those sinews which prepare to make it formidable to its enemies in times of war.*

* Prominent among the deep-laid machinations of those slavery zealots who sought the overthrow of Freedom and this National Union, in 1861, was the depletion of its Treasury,—as both the Southern conspirators, and their powerful ally, the Emperor of the French, plotted to possess themselves of its Pacific and Rocky Mountain mines. It was at this solemn and critical conjuncture, that the author of this address (through one of his public endeavors to defend the principles of the war) was honored with an acquaintanceship with Secretary (now Chief Justice) Chase; and who had just effected his first war-loan of one hundred and

THE RICHARDSON COLLEGE OF MINES.

And before I proceed any further, let me here say, gentlemen, that for every reason why I would influence public-spirited citizen like yourselves to join in developing our mines, I would interest them also in the College of Mining, Engineering and Architecture, which a veteran old miner has proposed to help endow in Chicago. Senator Stewart, of the Committee on Mines in the United States Senate is urging Congress to establish such a school of mines in Nevada. And there ought in fact to be an institution of this kind in California, in Utah, in Colorado, and in Montana, as well. At Ann Arbor, in Michigan, at one of the colleges in Pennsylvania, at Troy,* New Haven

fifty million dollars. The revelations which were made by this eminent minister of finance, and who was then the right arm of the government, gave new and startling emphasis to all that the speaker had ever heard or read to the effect that "money is the sinews of war;" and at this date also began his interest in our mines as a branch of national wealth and government policy.

In contrast with the improvidence of the American Republic, the wise forecast of the republics of ancient times, has on each succeeding comparison, become only still more strikingly apparent. So far from neglecting the development of their own mines, the popular governments of Rome and Greece, worked the mines of other countries, as sources both of civil and military revenue. I do not now recall what Athenian statesman it was (perhaps Themistocles) who proposed that the products of the mines, which had heretofore been divided among the citizens of that Republic, should thereafter be applied to the construction of a navy and naval armaments. Rome, as one of the sources of her power as mistress of the world, made an especial monopoly of the precious metal-bearing mines in all surrounding countries. On one Roman mine alone, there were twenty-five thousand men employed. Hannibal is said to have taken half a million dollars a year from one mine in Spain. Cato, from his accumulations in Spain, is said to have deposited that amount at one time in the Roman treasury; and Helvetius, who was governor of only one of the provinces of Spain, delivered at another time nearly twice as much. "Plenty of money, the sinews of war," is an expression which is employed by the Roman patriot and orator Cicero, in one of his speeches against Cataline; and who because of his extraordinary services to the Republic, was called "the father of his country" and "second founder of Rome." The Roman historian Tacitus, records his judgement with characteristic condensation, as follows: "The repose of nations cannot be secure without armies; armies cannot be maintained without pay; nor can pay be produced without taxes." Plutarch, one of the most philosophical thinkers of Rome, refers approvingly to the Greek philosopher, Bion, when he says: "He who first called money the sinews of the State, seems to have said this with especial reference to war." The Greek historian, Thucydides (who was so wise in thought and speech, that Demosthenes is said to have copied all his writings eight times over) affirms, that "accumulated wealth is a far surer support of war than forced contributions from unwilling citizens." And the same eminent and venerable authority elsewhere declares, in a spirit of still broader philosophy, and for the enlightenment and refutation of all publicists who think to make America powerful through weakness, and to prepare us for another war, by advocating that "a national debt is a national blessing," gives us the conclusion of the whole matter in the wiser maxim which follows: "For they have plenty of money, by means of which war and many other human enterprises are easily brought to an end."

* Knowledge is not only moral and physical, but even commercial power. To what extent Chicago might increase its commercial, as well as other intercourse, with very distant peoples, by establishing great schools of instruction, to be presided over by eminent masters of the practical sciences, will appear from the following, which was reported by the *Chicago Evening Post*, of the 28th July, 1871, under the head of "Japanese Students":— * * * "The expedition steamed away from Nippon fifty-nine strong. Twenty-five days brought them within the Golden Gate. Half still remain exploring California, but after five days there, the party I met, pushed on eastward. Most of these twenty-nine are bound for Washington to consult with their minister there, at which of our scientific schools they can best prosecute their

and Boston, and perhaps elsewhere, there are either single professorships, or several chairs in mining, which supply so many partial courses to so many infant classes. But in the whole country, there is really but one institution which is worthy to be called a school of mines, and that is the one in New York, where there are some seventeen professors.

A college in St. Louis, I understand, has lately endowed a professorship of mining. Such feeble efforts as this, really hurt this great interest, more than they benefit it. Instead of commanding popular respect, and attracting students; they excite contempt, and repel them. For an institution of learning to pretend to teach all the geology, mineralogy, metallurgy, chemistry, and all the mathematics and mechanics, connected with the scientific and practical mining of all the base and precious metals, in the lectures of a single professor; and which, at the Royal Academy at Berlin, occupy twenty-four distinct courses of lectures; is as ridiculous as if they should hold out to teach all the ancient and modern languages with the jaw-bone of a jackass. Or as if President Hall, of the Burlington and Quincy, there, should offer to do all the carrying trade of the four Pacific railways, with the Lake View dummy; or with the fifth quarter of a mountain pack-jack. Chicago and St. Louis, which are to be the two great centres of supply and distribution to the Rocky Mountain towns and States, ought each to have a full and brilliant faculty in the mining sciences. And it especially becomes that commercial centre which is the greatest lumber market, the greatest beef, pork and grain market in the world, to have the largest and best refining and smelting works in the country, the best appointed and most liberally endowed school of instruction, and soon after this, the principal Government mint. And if the Chicago of the East has a fair system of instruction, for still stronger reasons, and among these because it is so much nearer to the great mineral deposits, Chicago itself should have a truly great and thoroughly national school of mines.

The motives for establishing these schools of mines, as I have said, are the same with the motives for developing the mines themselves. Not only will they save in every economy, and add to every productive power, in all the processes of mining the base as well as the precious metals; but such scientific instructions and practices will throw light

studies. They were already acquainted with those at Yale, Harvard, etc., but seemed to think most favorably of the institute at Troy. One of them told me, to my astonishment, that there were twenty Japanese, most of them friends of his, students there already. Six had decided to study in Berlin, four in Belgium, one or two in Russia, and the rest in the United States."

upon every other system of material improvement the country over. The schools and the mines together, will help to restore American commerce to American bottoms,* and to extend and multiply its operations with every other country; and thus to bring to our markets at home, more products and purchasers from the ends of the earth. By redeeming the bonds, and filling the coffers of the Republic, they will add to the prowess and *prestige* of the Republic itself. And, finally, by giving a powerful stimulus to philosophical research in all the exact and practical physics, they will so tend to heighten the light, and the joy, and the glory even of human life, by adding to the existing sum of human Knowledge.

MINERAL ONLY ONE ELEMENT IN MINING.

It is possible (though I doubt it) that some still richer mines have since been discovered in Arizona, in New Mexico, and perhaps elsewhere, than even these in Colorado. But prove to me that a mine is much richer, in native worth, in these or other territories, or in Old Mexico, and I might still regard the mine in Colorado as the more profitable. The richness of the mineral is only one of several items which are to be taken into consideration. The ore of a mine may be exceedingly rich as to quality, and very abundant as to quantity, and yet the expense of production may be such, that every hundred dollars will cost one hundred and one.

And this suggests a capital and very prevalent error on the subject of mining; and that is, to regard a mine as a mint, and the ore as coin. Whereas, the truth is that mining is a branch of manufactures, and the ore is only the raw material. Given, the raw material, and the next question is about the means and appliances for manufacturing it? What about fuel—as wood or coal; what about water, not only to sustain life, but to furnish power; what about the food-producing capacity of the surrounding country; the healthfulness of the climate; the cost of living; the price of labor; the means of reduction; the facilities for transportation; the protection of government and law; and civilization generally?

Colorado is not more remarkably supplied with the crude native material, as gold, silver, copper, iron, zinc, lead, and all the other base

* "Whoever commands the sea commands the trade of the world, and whoever commands the trade of the world commands the riches of the world, and, consequently, the world itself." *Sir Walter Raleigh.*

metals which usually accompany precious ones, than it is with all the natural means of working these up to a state of use.

I will now attempt to impart some information about this territory, as a mining country, under each of the heads I have named; and while my most moderate statements of fact, will sometimes seem to partake of the romantic when I speak of the country, that part of my report which will probably surprise you most, will be what I have to say about the good character of the miners themselves.

WATER.

As the sides of these mountains are perpetually green with timber, so their peaks are eternally white with snow. This last being melted by an ever-genial sun, furnishes unfailing supplies both of water and water-power, on the slopes and in the gulches above, and wherever canals are dug, not only irrigate, but furnish water-power on the interminable plains below. The Colorado farmer turns water on and off his fields, as we do with faucets in a bath room.

COAL.

At the base of the mountains are deposits of coal which will supply the mines and the mining mills for centuries. As soon as the narrow gauge railroad is completed, which is to wind up the mountain-sides, a ton of coal will be furnished at the mines for three dollars; and which will be twice as cheap for fuel purposes as wood now is at five dollars a cord. The Superintendent of the Brown Mining Company told me that this improvement would effect a saving to his company alone of from eight to ten thousand dollars a year.

FOOD.

So strong is the soil of the low-lands and bottoms, that they not only sustain, but they fatten cattle with their native grasses, without any other food, or any description of shelter, even in winter. As a stock-raising country, intervening between Texas and the great markets of the East, Colorado is hardly inferior to Kansas. In vegetables it almost rivals California. If I were to state the size of the potatoes, beets, onions and cabbages, it would bring discredit upon my whole report. All the small fruits are grown in abundance, and there is a high flavor in them, which probably, with much of this other

strength of the soil, comes from the mineral deposits of the mountains. I ate the mountain raspberry, preserved, and which I was told abounded even very high up; and the taste has gone among those rare and delicious memories which we never forget.

While corn that is fair is grown in Colorado; it was not pretended that it equals that of Illinois, or Kansas or Missouri. The wheat however is wonderfully good; forty bushels to the acre are not considered remarkable; and the crop has never been known to fail. The whiteness of the Colorado flour, left a finer impression on my mind, than even that of its silver; and I can easily imagine that its fields at harvest display a richer brown and yellow than even its gold. There may be sweeter bread than that which is made of this unbolted wheat; but it has never been my good fortune to eat it. It gives me a feeling of mountain-hunger even now to think of it.

CLIMATE.

You cannot understand how the climate can be so favorable to vegetation, unless you efface your present impression, that in order to find mildness and warmth, you must go south; and until you set it down in your mind, that it answers equally well to go West. The air from the Pacific is so entirely different from that of the Atlantic, that it is a common remark everywhere within a thousand miles of the former, that if our good old ancestors had settled on the western coast of this continent, instead of the eastern, New England would never have been peopled at all.

To the many who since my return have remarked very sympathizingly to the effect that with all my enjoyments in the Rocky Mountains, I must have found it dreadfully cold, I have been enabled to say that, on the contrary, I found it much milder there, than we have it at the same time of year in Chicago.

I will here relate two facts.

When the Locating Committee of the Chicago-Colorado Colony left Chicago in January last, to select lands for the Colony in Colorado, the streets of Chicago were so blocked up with snow and ice, as to be impassable by the city railways. When they reached Denver, the farmers were ploughing.

Again. On the 31st of March last, I met Mr. Sexton who sits before me, in Wabash Avenue, but did not at first recognize him. "Why, Sexton, is this you; I did not know you, you look so much

larger." Upon this he said: "Why, it's this overcoat. When you saw me in the mountains, I never wore an overcoat; but here in Chicago I have to wear it, because it's so confoundedly cold."

Look at it. In November, December and in January, he wore only one coat on the mountains in Georgetown; in Chicago, he had to wear two on the last day of March, on many days in April, and some days even in May.

If a man can thus pass through the winter with only one coat in the mountains, you can begin to comprehend the fact, that cattle live with no shelter but their skins on the plains below.

This greater mildness of climate, and greater genialness of soil, are the secrets of that mighty lode-stone of attraction which De Tocqueville remarked upon as follows: "The gradual and continuous progress of the European races towards the Rocky Mountains, has the solemnity of a providential event."

HEALTHFULNESS.

As to the conduciveness of this climate to health, you have seen what Governor Bross has said of it frequently in the *Chicago Tribune*. You have observed that he has been attracted there at three different times by the health-inspiring effect of the air, added to the supreme beauty of the scenery; and now he says he is going there again. Mr. George S. Bowen, also well known to you all, as an eminent merchant, who wastes his health and strength in his counting-room, as the scholar does in his study, told me on returning from only a ten days' trip to Denver, that he felt perceptibly improved in the tone both of body and mind, and that even in that short time he had gained three pounds in weight. It is said somewhere in the classics, that the gods do not count those days which are given to the chase. It would seem to me that every day you spend in hunting, or fishing, or riding, or climbing, in Colorado, you live ten days in one, at the time, and probably have as many more days added at the other end of life.

COLORADO SLEEP.

But then it is not only that your days may be longer in the land, in the day-time proper; but you gather up your forces and vitalities so grandly at night, that you not only return thanks, like Sancho

Panza, in the morning, for the original invention of sleep; but you sing several additional glorias and te deums for all these modern Colorado improvements. Think of it, ye who swelter on the banks of the sweet-smelling* Chicago—picture such a state of air and other surroundings in your imaginations if ye can—where the people “sleep o’ nights”—where they sleep Young’s “balmy sleep,” and “tired nature’s sweet restorer”—where they sleep Shakespeare’s sleep, “chief nourisher in life’s feast,” and all that—where even in the dog-days, not the body only, but the brain, and the heart, and the spirit, as well, wax mighty in their strength; where no longer with themselves or with nature at war, sweetly blending the innocent slumbers of an infant, with the robust repose of a giant, they pass through every hour and every minute of the whole night, in total and supreme obliviousness, and without once hearing the voice of the mosquito in the land. No gasping behind window-bars, or under bed-canopies there. All the drapery that is needed to make a couch fit for royalty itself, is a good horse blanket under you, and a mackinaw over you; and you sleep a sleep which is never known to a head that wears a crown; you sleep the sleep of a just man made perfect. Nor are you to get the impression, from this, that there are any of those drowsy or yawning ingredients in the air, which you have found elsewhere, and which make men half asleep even when they are awake; nor yet again, such as make them sleep so fast and hard, as they say, that it tires them out, and they wake up. This is not Colorado air, or Colorado sleep, at all. While the Colorado man when he sleeps is so dead asleep, that he looks as if his spirit had gone to glory; yet the moment he awakes, he is so wide awake, that he looks as if he had just returned from the heaven of heavens, and intended to stay upon the earth for the rest of the day.

* This phrase is left as it was originally uttered, to mark the rapid and great changes for good, which may be effected by mechanical science and commercial enterprise. The Chicago river, which when this interview was held, was to the last degree polluted and foul, has since been made comparatively clean, by the completion of the Illinois and Michigan canal. The course of the current has not only been changed, but it has been completely reversed; so that it now flows literally up stream. Whereas the river formerly flowed into Lake Michigan; Lake Michigan now flows into the river. And instead of being avoided, as insupportably offensive, steamboats sail upon its waters on moonlight pleasure excursions. So sudden and complete an abatement, of so vast a nuisance, fills the minds of three hundred and forty thousand people, with equal wonder and delight. Nothing has ever wrought such precious and marvellous results for the health and comfort of Chicago, as the Illinois and Michigan canal, with the single exception of the Lake Michigan tunnel. And these noble achievements in the arts of construction, are samples of the brilliant triumphs, some of them productive perhaps of still more benificent results, which may be multiplied by generously endowing great schools of civil and mining engineering, and calling to their halls of instruction, *savants* who are eminent for scientific learning and inventive genius.

THE AGRICULTURAL COLONIES.

It is this sweetness and purity of the air, this genial mildness of the climate, and this wonderful strength and fertility of the soil, on the plains, conjoined to their confidence in the continued richness of the mines, and consequent markets, in the mountains, which attract so many farmers to settle and form colonies at their base. Nor are these settlers to be confounded with ordinary agricultural emigrants. The beauty of the country, the healthfulness of the climate, and the certainty that the increase in the price of their land, will soon secure them a life-long independence, unite to attract men from good positions elsewhere. Mr. Stanley Fowler, lately one of the Editors of the *Chicago Railway Review*; Mr. Holly, responsibly connected with the house of Butters & Co.; Mr. Coates, a responsible clerk in one of our wholesale Drug Stores, are three of those who are personally known to me, and with whom probably the first motive was health, whose personal excellencies would add moral value to any community of men. And to show the character of the Chicago Colony generally, when a gentleman lately said to the lady, who with her husband has charge of the Colony boarding house, "It must be very unpleasant for you, Madam, to be alone among so many men;" she said, "Not at all, Sir, I have been here now for several weeks with seventy-five men; and I have never yet heard a profane or objectionable word."

Note the significance of the success of the Greeley Colony. Where there was nothing but bare prairie land, fourteen months ago, there are now six hundred houses, giving shelter to fifteen hundred men, women and children. When I passed through Denver, on my way back, I bought the copy I now hold in my hand, of the *Greeley Tribune*—a weekly paper, which was printed only nine months after the first tent was pitched, bearing date January 4, 1871, and which yet contains, as you perceive, fourteen and a half columns of reading matter, and nine and a half columns of advertisements. Col. Pratt told me that he saw one of their town lots sell a few weeks ago, for nine hundred dollars, in cash; and since that, I have learned that the trustees are contracting for a thirty thousand dollar school-house.

The application of these facts to your enterprise, you will perceive, gentlemen, is, that among the causes which conspire to attract such numbers, and to produce such rapid and wonderful results, on the plains, and which if they should give to Colorado in five years' time

a population of a million, would occasion me no surprise—what concerns your interests and calculations is, that chief among these causes, is the universal faith there is in the productiveness and permanence of the mines up in the mountains. And then again, whatever increases the quantity, and so lessens the price of the miner's food, adds just so much to the productive value of the miner's work.

TRANSPORTATION.

I will now speak of the facilities for bringing in supplies and carrying off ores. The Union Pacific Railroad runs from New York to San Francisco, within one hundred and fifty miles of the Georgetown mines. The Kansas Pacific runs to Denver, which is less than sixty miles from the mines. The Denver Pacific connects both the Union and the Kansas Pacific. From Denver the Colorado Central runs to Golden City, which is only about forty-five miles from the mines we speak of. These mines are therefore almost on the line of two great national railways. Besides which, a narrow-gauge railway from the plains, themselves, to the very mouths of the mines, is in contemplation; and there is now reason to believe that this road may be in operation in less than eighteen months. Some persons expect it inside of a year. I sent a copy of the statistics of traffic, to Mr. Ward, the great iron merchant of Detroit, and although he said he could not invest in the enterprise himself, he expressed the conviction that if it were well built and properly managed, it would prove financially remunerative.

The outlay of the Denver Pacific, that is the one hundred miles or so, which run north and south, and which connects the Union Pacific with the Kansas Pacific—the expenses of this connecting road for the year 1870, were, in round numbers, \$168,000. The receipts of the road, during the same time, were, in round numbers, \$304,000. In his last annual report, Governor Evans, the President of the Denver Pacific, advocates the early construction of the mountain railway from Denver to Central and Georgetown. And when a man of such energy, so much public spirit, and so accustomed to great enterprises, especially in the way of railways, as Governor Evans is, speaks thus publicly and to this effect, you may rely upon it, that it infers that the cost has been counted, that the whole matter has been well considered, down to surveys, specifications and plans; and that it means, in short, that the

bell has been rung, which announces the approaching engine; and thousands of miners feel already a joy in their hearts like that produced by Mr. Hemans' voice of Spring:

I come, I come, ye have called me long;
I come o'er the mountains with light and song!

Even as it is to-day, however, you are to understand, that you can ride in Pullman's Palace Cars to Denver City, and then fifteen miles further in the cars of the Colorado Central to Golden City; so that after seeing the buffalo, and the antelope, and the prairie dog, and the sun rise and set, and rise and set again, in beauty and splendor, on the plains, you cap the climax of your enjoyment by a ride of forty-five miles in coach, through the sublime glories of the mountains.

NOTICEABLE TRAITS IN MINERS.

THE PRESIDENT. Will the professor please to tell the board about the price of potatoes? When I was in the mountains, they sold for ten cents a pound.

MR. MCCOY. Yes; and even now they sell for about six cents. And this illustrates a very curious and interesting trait which I observed to be universal in our Western miner. He will have what he wants, and that entirely regardless of the expense. Of what he can buy, and does buy, the quality must be the very best. He never sees any coin less than a five-cent piece, and he utterly despises the day of small change. An old mining prospector was on the cars, on his way back from a visit to St. Louis; and he carried back to the mountains a handful of coppers "to make the boys laugh," as he said, "at the trash they use in the States." At this point I was introduced to the speaker, who turned out to be an old and enthusiastic mountaineer, trapper, hunter, prospector and editor—whom I had frequently heard of, Commodore Decatur, better known throughout the territory as "Old Sulphurets," and who deserves to be mentioned here with honor, because of his sustained enthusiasm and abiding faith in the richness of the Colorado mines. He told me he had been taking some mineral down to St. Louis, that he was "sick of the city," and was "glad to get back to God's own country." That "never did any lover more rejoice to see his sweetheart, than he did to set his eyes on those mountains." That "he would not live in St. Louis, if they

were to give him ten of the best blocks in it." "How about Chicago?" I inquired. "Chicago! I would not live there, if they were to give me the whole city."

I got better coffee in miners' cabins, than I am accustomed to in our best eating houses and hotels in Chicago. I had no idea that I should see any such luxury as sugar; and yet I never was in a miner's cabin, where they did not use the most expensive white sugar—what we call crushed or coffee sugar. Mr. Barton, of the Barton House, told me that he once ordered a quantity of ten cent cigars. Greatly to his surprise and chagrin, nobody would buy them. Nothing less than twenty or twenty-five cent cigars will sell. And so it is with everything the miner uses—boots, shoes, clothing and groceries. I heard of a number of cases where dealers in cities had sent to these mining-camps some second or third rate goods, in the way of ready-made clothing. In every instance they had to pay the cost of freightage back to the cities, and not only did they have their labor for their pains, but they were well laughed at in the bargain.

What the President refers to about potatoes, recalls a story I heard in regard to eggs. These, with butter, and poultry, to be fresh in the mountains, must come from the farms on the plains, or as they are called in the Pacific countries, "ranches." In distinction from these articles from the ranches, are those, which of course are not so fresh, from our markets here, or as the territory-man phrases it, "from the States." The story is, that a Colorado miner, at the Fifth Avenue Hotel in New York, ordered eggs for his breakfast, and afterward exclaimed aloud: "I want those eggs to be *ranch* eggs, do you understand? None of your darned *States* eggs for me!"

THEIR INTELLIGENCE AND CHARACTER.

The moral character of the men of a mining-camp, is intimately connected with the value of the mines. I do not personally know the miners of any other country; but nothing took me more by surprise than the superior intelligence, and the general good conduct, of the miners and other populations of Colorado. The prevailing idea is of a very large infusion of border-ruffians, rowdies, roughs, gamblers, murderers, and thieves. I saw no more of these, in Colorado, than I did of Indians. My impression at the last was, that life and property are about twice as safe there, as they are in one of our great

Eastern cities. Colorado appears to have been troubled, as all mining-camps are, with dangerous classes at first. Old pioneers spoke in very quiet and subdued tones of the "saving efficacy of hemp;" of tree-limbs as "a means of grace;" and how such and such a nest "got religion" over night; and others who in consequence of this "awakening" had "left their country for their country's good." In short, their views seemed to be the very reverse of John Wilkes, when he said, that "the very worst use to which you can put a man is to hang him." At Central City, noticing that my chamber door was repeatedly left open, I entered a very mild remonstrance. I was told by the woman in charge that she would lock it, if I so insisted; but that it was wholly unnecessary. She had been in that hotel for eleven months, and never in all that time had heard of anything being missed. When I told this as something remarkable in Georgetown, the steward of the Barton House, said that he had been in that hotel for two years, and never knew anything to be wrongfully taken. There are eight towns in Colorado where weekly papers are printed. I have shown you the Greeley *Tribune*. Here is a copy of the Georgetown *Miner*, with its ten or eleven columns of reading matter, and nine or ten columns of advertisements. Besides these weeklies, both Denver and Central City publish dailies, and which every day gave us yesterday's dispatches from Paris. Some of these newspapers discuss the past, the present and the future, of the peculiar interests of Colorado, with remarkable ability. If there are any who still think that mining impoverishes a people; what will you do with facts like these: that in Denver, a place of perhaps seven thousand people, a town lot was lately sold there to a bank for twenty thousand dollars; and that this very bank has on deposit a million of dollars, mostly in small sums?* If you say that Denver is not a mining town proper, but a city for shipment and supply, on the plains; then I report that on going up into the mountains, I found that the bank in Central City (which with Black Hawk and Nevada contains about as many people as Denver) had a million and a half dollars on deposit. What is the guaranty of security for life and property, where, in so small a community, there are so many bank-depositors?

* In Denver, Colorado, 57 business edifices and 445 dwellings have been erected during the past year. By far the largest number of lots disposed of during that period have been sold to actual settlers or residents, who have built or design to build on them. In the same period the population has increased by about 2,000, and now numbers 8,600.—*Chicago Tribune*, August 5, 1871.

MOUNTAIN MINING NOT DEMORALIZING.

Let no one suppose that I mean to intimate that thousands and tens of thousands of men have gone to any spot upon the globe, and have not taken with them all the infirmities, passions and vices of men. Spirituous liquors and tobacco, for instance, prevail in these mining-towns in the Rocky Mountains, very much as they do in Chicago; and the effect of these stimulants and narcotics is always and everywhere evil, and only evil, and that continually. But that the occupations and processes of mining itself—I mean mountain mining—are not essentially demoralizing, I am now fully convinced. On the contrary, that there are influences in mining—I mean mountain mining always—which are refining and elevating in their character; so that a bad man is made less bad, and a good man is made better. "Mountain men"—as the motto of West Virginia says—"Mountain men are always freemen;" and mountain miners are probably always thinking men. They must be so from the very nature of their employments and surroundings. While earning their daily bread, these occupations at the same time furnish constant food for the mind; and that in contemplating the secrets and wonders of creation, in the purest and most ennobling fields of science. If history, as Hume affirms, is the "mistress of wisdom"; here is a class of students who are forever pouring over the records of an antiquity so remote, that old father Heroditus himself becomes a man of yesterday who knoweth nothing. These rock-ribbed caverns, like the ancient groves, become temples of such serious and solemn thought, that the depravest man who frequents them, must needs look up sometimes through nature to nature's God. Certain it is, that profane swearing and irreverence, so constant and habitual in our towns and cities, is noticeably less frequent among the mining men of the mountains; and the prevailing tone and staple of mountain conversation and demeanor, is not only self-respectful, manly and considerate, but even high-minded, generous and noble.

PATRIOTISM OF THE MINERS.

The Pike's Peak gold-hunters of 1859, who are now the gold and silver miners of Colorado, like those who went out to California in 1849, are not only successful seekers of those precious metals which are so great a necessity to commerce, to the government, to the nation,

and the world; but no history of our country will be comprehensive or complete, which does not assign to them a respectable place, both among the pathfinders of Empire, and the founders of free and great commonwealths. Next to the men of 1776, and next to the men of 1861, as it seems to me, they deserve well of the American Republic. In our late great struggle for Nationality and Freedom, when the heavens were darkened, when the earth was drenched in blood, and when it seemed as if the sacred temple of Liberty itself would be rent in twain—many of these pioneers and prospectors laid down the shovel and the pick, and took up the bayonet and the sword; to fight for that great National Union of Washington, which binds, not less the West with the East, than the South with the North. With such rude uniforms and accoutrements as they could lay their hands on, but considerably short at first of the regulation-standards, these mountain and miner braves, to whom hardship is sweet, and to whom danger is romance, went forth to battle both with the Southern rebels, and their Indian allies, as less hardy and masculine spirits go forth to a festival. Misunderstood and disparaged as they may be, where they are not known, it was enough that these men knew themselves, and knew where both their blood and their liberties came from. As at Concord and at Bunker's Hill, in person, so now again in the spirit of these their descendants—

In their ragged regiments,
Stood the old Continentals,
Yielding not.

And bravely and well did these Union-loving and loyal-hearted emigrants to the new far West, do their part towards this sublime result of the war: that though you take to yourself the wings of the morning, and follow the sun in his course, from the rising of the same in the Atlantic ocean, to the going down thereof in the Pacific, you see in all this glorious flight, but one flag, over one country—one country, under one flag! And you feel a deeper and more abiding assurance in your heart, than you ever did before, that as it is now, so it ever shall be—not only forever one, but forever free!

CLOSING PROOFS OF THEIR PROBITY AND KINDHEARTEDNESS.

DIRECTOR. Will the Professor please tell the meeting about his gold watch?

MR. MCCOY. Oh, yes, this watch; thereby hangs a tale of some significance. Well, though it happened to me to have a very warm reception from the first, yet at the last they made it a little too hot for me. The night before I was to leave Georgetown on my return, I woke up about half-past one o'clock, to find the Barton House, in which I was stopping, in flames. After I saw that my trunk and valises were safe, and after ringing the neighboring church bell for a while, I observed that I had not saved my watch. It is not of very great value intrinsically, but having spoken by it several hundreds of hours, in ten or more States of the Union, in support of the war, I value it highly for its associations. "Of course," I said, "I shall never hear of that watch again." Remembering that two opera-glasses had been taken from this very room in fifteen months, it was to me simply amusing to hear mining-prospector Isaacs speak in all apparent sincerity as follows: "If the watch is burnt, of course that is the last of it, as you say; but if any of our mining-boys have taken it out of your room, you may rely upon it that as soon as it is known who it belongs to, it will be returned." And this calm and refreshing trust in the goodness of human nature, turned out to be not misplaced. Before the sun was up in the morning, to behold the ruins of the night, my faithful old time-piece during the war, safe and sound, still running at the rate of sixty seconds to the minute, was handed back to me by Marshal Wymonds.

And this is the country (it makes me laugh at myself now to think of it) which before I visited it, I rubbed up my poor practice with the pistol a little, thinking I might have to use it. And this is the country, which before Mr. Leonard Calkins, of this city, visited—thinking it must almost as a matter of course be stolen from him—he actually exchanged his gold watch for a silver one!

In point of fact, gentlemen, it will help you to a much truer apprehension of the character of these mining populations, if instead of regarding them as heathens, and ourselves as christians, you will please to change places, and regard them as the christians, and ourselves as the heathens.

Not only was my watch thus returned to me, but seeing that my long ride in the coach, so early of a January morning, would probably make me chilly, one of these veteran prospectors, out of that genuine kindness of spirit, which would bring a glow to your heart even in the Arctics, went back to his cabin, brought a blanket off his

own bed, and, against all my protests, persisted in placing it around my knees.

You can now well believe, gentlemen, that in parting with so many objects of interest, and with which I seemed now to have become personally acquainted; that in bidding adieu to those wonderfully-beautiful cañons, and those majestic and eternally snow-capped peaks, I rode down to the plains, thinking more kindly and more favorably of poor human nature, than I did when I went up; and if I were to live a hundred years, I would still exclaim in my heart, as I did repeatedly on my return-ride that morning: *Men and Mountains of Colorado, Hail and Farewell!*

CLEAR CREEK COUNTY MINES.

I have said, Mr. President and Gentlemen, that when the mines of the globe struggled for distinction at the Exposition at Paris, in 1867, the medal of honor, for the most productive silver-bearing mines in the world, was awarded to Colorado. I will now add, that at the Industrial Fair of Colorado itself, and which was held at Denver, in September, 1870, the territorial juries awarded the medal for the richest silver mines of Colorado, to Clear Creek County, where your properties are situated; and the medal for the richest of the richest, as adjudged from numerous samples of the same ore, was awarded to one of the lodes which your tunnel will strike—the Snowdrift Lode. I saw these medals delivered myself by Commodore Decatur at a public meeting of miners in Georgetown.

BROWN AND SHERMAN MOUNTAIN MINES.

All of your properties at present are situated in Brown and Sherman mountains; and it affords me pleasure to report that these are the mountains in whose mines I have the greatest confidence. I know these best, have studied them most, and would appraise them the highest. They contain, of all the mountains in that region of country, the greatest number of mines that are developed and proved. I never heard of a mine in either mountain which ever gave out; or which did not grow richer as it was worked down. In the Brown

Mountain is the celebrated Terrible Lode, which a year ago, sold for five hundred thousand dollars in gold, in London. The last English mail brought the intelligence that this stock, which was lately sold at sixty per cent. premium, had now advanced to seventy per cent. The Brown Company's property probably could not be bought for less than a million. Then there are the Mammoth, the Brown, the Coin, and the John J. Roe—all developed, and all proved to be exceedingly rich; and to grow richer as you go to a greater depth. I visited all of these several times, and give both the result of my own observations, and their reputation according to the speech of men as it prevails around them. While the character of these mountains seemed to me to be better established, for the richness and continuity of their veins, so, they seemed to require less expense in the way of roads, to haul up provisions to the men, and to haul down ore to the mills—inasmuch as they are nearer, at once, to the level of the Creek, to an excellent wagon road which is already built, and to the principal reduction works.

DEVELOPING MINES FOR SALE.

In addition to working mines for the profits of mining proper, I perceive that your plan includes the great additional feature of buying mines for development and subsequent sale. My enquiries in Colorado, left the impression on my mind, that with considerable capital to begin with, this form of commerce, especially if coupled, as you propose, with enlightened continuous mining proper, could be made vastly profitable. While to persons who properly inform themselves, there need be no more risk in it, than there is in investing in real estate in Chicago. There is a bureau of mines in London, whose capital is now; I dare not say how many millions, which so buys develops and sells mines all over the world. A wiser course for a company of moderate means, would undoubtedly be, to restrict themselves to a range of mines, of proved certainty, like those of the Georgetown district. Much of my information on this branch of the subject is obtained from English capitalists, who were visiting our different territories, and that in the depth of winter, examining and purchasing mines. And here is surely a noteworthy fact, that while in every other country, it is the settled policy, that its gold and silver-producing mines shall be worked by the government, or its subjects;

with us, on the other hand, many of the best and richest mines in America, are now passing into the hands of the capitalists of other countries.*

I have said that the Terrible mine in Brown Mountain was sold to a body of capitalists in London for five hundred thousand dollars in gold. And yet so little has this arrested attention in our own country, that though this occurred over a year ago, the fact has never been mentioned, as far as I know, in any Chicago journal—wonderfully enterprising as they are in gathering and publishing every other form of news. The great fact that the Burleigh Tunnel has struck the Mendota, has not been printed here, much less any of the important theories which are established by it. And yet in four and twenty hours this event was made known by cable to several circles of mining capitalists in London; and men are now on the ocean, who are charged with investments in consequence of those dispatches.

Mr. Old, the agent of the Terrible Company, and other English miners, told me that if they bought the Mendota West for, say, a hundred thousand dollars, they would expect to sell it in London inside of twelve months for two hundred and fifty thousand dollars. This was before the Burleigh Tunnel struck it. Some German experts and scientists thought Mr. Old's estimate and expectations very moderate, and they put their opinion in writing to the effect, that if twenty-five thousand dollars were expended in developing this mine, it would command a million of dollars.

When I asked Mr. Roberts, the principal owner of the Mendota East, what he regarded as the cash value of the Mendota West, he said he did not like to answer my question in that form; but he would make some calculations, based on the actual products of the mine, to show what amount of ore might be taken out of it. When I saw that his figures presented an aggregate of sixteen millions, in profits, and that even then he had only reached a depth of eight hundred feet, which in mining matters is considered only a good start in the world, I excused him from using up any more stationery on my account.

* A short time ago a silver mine in Utah was bought for \$1,100,000 in gold by London capitalists, and the bargain was made, the title passed, and money paid within forty-eight hours.—*New York Dispatch to Western Associated Press, August 7, 1871.*

[Special Dispatch to the Chicago *Evening Post*.]

NEW YORK, Aug. 9.—The sale of another Utah silver mine is reported to day to a foreign company, for \$800,000, the transaction having been closed by cable.

I was reminded of a joke which was told to me in the mountains, of a certain miner, who (as the phrase is there) had "struck it rich on the lower tunnel," and who was excusably elated by his great good fortune. Among other extravagances of speech and of deed which were related to me, was this: In laying in supplies in Chicago, he stepped into a bookstore, and asked "if they kept lead pencils for sale?" "Do you want one pencil or a dozen?" "A dozen lead pencils! Why, I want a gross, at least. I am a miner in Colorado, and I have struck it so rich, that it takes fourteen or fifteen pencils every day to do my figuring."

THE HERCULES AND LADY FRANKLIN LODES.

DIRECTOR. Will you have the kindness to state, sir, what you know personally of the Hercules Lode and the Lady Franklin?

MR. MCCOY. Certainly, sir. At the request of a member of this board, and also of the owners, I examined both of these lodes with care, and reported my observations and opinions at the time in writing. I suppose these written statements are now in possession of this Company. I took ore out of both of them and had it assayed. The cup in which the ore of the Lady Franklin lode was assayed, I brought with me as a curiosity, and I now hold it in my hand. The authentic certificate of assay, of both of these lodes, I sent to Chicago, with my written report made from notes taken on the property itself. A finer site than the Lady Franklin holds, for the purposes of a tunnel, I do not remember to have seen. On each end of the Hercules there is a shaft, said to be some twenty-five feet deep. This latter takes rank therefore among lodes that are proved and almost developed. It was ore from one of these shafts, and taken out by myself, that yielded, by fire assay, the great value of over \$800, silver, to the ton of ore.

Both of these mines are in Brown Mountain, in the midst of a whole family of mines, whose extraordinary richness are established beyond all cavil or doubt; and which invariably grow richer as you work them further down. A mining engineer of such high personal and professional standing, that no man in Colorado pretends to question his statement of a fact—I mean Robert O. Old, Esq.—states in writing, for instance, that the ore in the third level of the Terrible, is twice as valuable as the ore in the first level.

I believe that it would not take very many thousands of dollars to so develop both of these lodes that they would each bring as much as the Terrible itself did—a mine which is of the same great family, in the same mountain, and which is perhaps not more than a thousand feet off.

And while for the sake of turning your money over rapidly, and declaring dividends, you might choose to sell one of these mines, as soon as you had brought it to such a state of development, that it would bring half a million of dollars; yet if you choose to put in enough capital in the way of still further development, there is no reason why you should not sell them for a million, or, for that matter, for five millions. An English mining capitalist told me that he knew of a lead mine in England, and which certainly was not as profitable as the Hercules and Lady Franklin can be made, which could not be bought for five million dollars, in cash.

MINES ON THE SUNNY SIDE.

A DIRECTOR. Does it not make some difference as to which side of Brown and Sherman Mountains these properties are situated?

MR. MCCOY. Certainly; a good deal of difference. On the shady side of mountains, even though it be not too cold to work, yet there is frequently melted snow enough to make a little ice; and which on such precipitous trails, greatly interferes with climbing by the miners, and packing provisions and ore by jacks. The shady side to me would make a difference equal to one-third of the whole value of the mine. Your properties are situated on the southern and sunny side, where all operations can be carried on without a day's intermission, in winter as well as in summer. Photographs of these mountains I now hold in my hand, and you will see by the light on the pictures, that you can realize up at these properties, the lines in Goldsmith:

As some tall cliff that lifts its awful form,
Swell from the vale, and midway leaves the storm ;
Though clouds and darkness round its base are spread,
Eternal sunshine settles on its head.

DEPOSITED MINES AND FISSURE VEINS.

Question. We have been explaining to some of our friends present, the difference between mines which are deposits and mines which are fissure-veins. We would like the Professor to help make that distinction clearer.

MR. MCCOY. I am glad you have reminded me to touch upon this point, for nothing in practical mining is of greater importance. As far as I could gather, it seemed to be the concurring voice, both of scientists and of practical miners, that the Brown and Sherman mountain mines, are genuine fissure-veins; as some of the White Pine mines are as certainly mere deposits. While I regard a strong fissure-vein of the precious metals, and which is well-situated, one of the safest and most remunerative investments that can be made, I would not invest a dollar in a mere deposit. The deposit may be very rich, as long as it lasts, but the trouble is, that it may not last long enough to enable you to take out of it even as much as you put in. A man of good judgment, who has informed himself of certain fundamental principles in geological science, who has acquainted himself with the situation and character of the mountain, and who marks well the wall rock, the crevice formation, and the pay vein of the particular mine, can determine what is a true fissure-vein, and what is a mere deposit, with about as much certainty as a chemist can decide by his tests, what is true coin of the realm, and what is counterfeit. When an experienced prospector strikes a deposit, as many did at White Pine, he immediately wants to sell out, or seeks to make money by organizing a company and selling stock. When he strikes a fissure-vein, he knows that he can make money enough by working the property itself. The experienced miner ranks deposits among the glorious uncertainties of the law; but fissure-veins he regards as certain as taxes or even death itself. Deposits, like the surface roots of trees, spread out laterally; while fissure-veins, like the tap-root, strike down perpendicularly. Like Virgil's description of rumour, the fissure-vein grows larger, as it goes further; but the deposit, like the lady's waist in Prior, "grows fine by degrees and beautifully less." A fissure-vein gets broader and broader like a firkin of butter; but a deposit grows narrower and narrower, like a butter-firkin upside down. All of this Company's mines I believe to be clear and certain cases of true and well-defined fissure-veins; and if you were to put three shifts of men to work upon them to-morrow, and ore were to be taken from them every day, and every night, for a century, so far from being then exhausted, your children and your children's children, down even to the third and fourth generation, would probably see these properties even more remunerative than you will ever see them yourselves.

TUNNELS IN MINING.

I will now remark upon a feature in your plan, which in my judgment is one of commanding importance, and that is the tunnel. The Colfax Tunnel, which is one of your great properties, with the water privilege and mill-site adjacent, are situated at a point at the base of the Sherman Mountain, and on one of the Clear Creek branches, near the Silver Plume mining-camp; where a little forest of evergreens above, and the white surges of the roaring waters below, with other delightful features too numerous to name, have often enchanted me with their beauty, both under the morning and the evening sun, and when the milder radiance of the moon threw over the scene a still more romantic spell.

Both of the mountains in which your mines are situated, are peculiarly adapted to tunnelling, because of their being so abrupt and precipitous. You are to understand that whereas a shaft sinks down into a mine, from the crest of the mountain, a tunnel strikes into the mine through the mountain's side. And that while a tunnel serves many of the purposes of the shaft, better than the shaft itself, it also accomplishes other purposes which the shaft does not serve at all. The tunnel greatly improves the means of ventilation—a very important consideration when you remember how much powder the miner uses, and sometimes giant powder at that. The tunnel drains off the water. How great an item this is in the expenses of working a mine, you will guess when I relate, that the foreman of one of the best mines in Colorado told me, that they sometimes spent eighteen hours out of the twenty-four, in hoisting water. When, on the other hand, the tunnel reaches your shafts and drifts, sink a little gulley on each side of it, and all the water runs off itself—leaving you the full twenty-four hours every day to ship ore. It was to thus drain off the water at a mine in Hungary, that they constructed a tunnel six and a half miles long, known as Joseph the Second's Tunnel, at an expense of some four hundred thousand dollars. All this expense was at first to draw off the water; though they afterwards enlarged the tunnel at a vast additional outlay, to also take out ore.

While these experiences in Hungary, and in other mining countries, have abundantly established, that the tunnel system is the most convenient, the most healthy, the most economical, and every way the most remunerative, even when a single mine is all there is in the

mountain to be worked; yet the National Government, anxious for its own coin and specie purposes, to encourage the speediest and largest development of the precious metal-bearing mines, holds out still more brilliant inducements to gore the sides of the mountains with tunnels.

How the tunnel system helps both the government and the people to "march on without impediment" into the "bowels of the land," will appear from this: that while the shaft, which is perpendicular, strikes only one of the veins, which are also perpendicular; the tunnel, on the other hand, being horizontal, strikes every vein in the mountain; it strikes them all at a great depth, and where because of this depth, the veins are both broader and richer. Where for instance, I measured the Mendota West, in a shaft some fifty feet deep, the vein was some eighteen inches wide; but the Burleigh Tunnel, striking the vein at the depth of eight hundred feet, finds the vein widened to some thirty inches; while it is found that this greater width of vein contains still richer ore. So many, and so important, indeed, are the principles which have been established by Mr. Burleigh, in carrying through this bold, and now greatly-successful undertaking, and so vastly does it add to the value of all the mines in Colorado, that it would be but a cheap tribute from their owners, to commemorate his services by a statute of gold.

There seems to be but one voice among those who are acquainted with mining elsewhere, that Colorado, from the almost perpendicular precipitousness of its mountains and rocks, is better adapted to tunnelling than any other mining country in the world. Joseph the Second's Tunnel, I have said, is six or seven miles long. The Sutro Tunnel, in Nevada, is to be five miles long. By a law of Congress, this tunnel is to have two dollars on every ton of ore shipped through it from the Comstock lode. The Little Cottonwood Tunnel, in Utah, I judge must be of considerable length, since the company is incorporated with a capital of ten million dollars.

But the extreme eligibility, even for Colorado, of your Colfax Tunnel site will appear, when I say that while the Marshall, in Leavenworth Mountain, and the Burleigh Tunnel, only a few hundred feet from you, in Sherman Mountain, ran some nine hundred feet before they struck mineral; you will probably strike the King David lode in one hundred and fifty feet; and four lodes in four hundred feet. And so much are you favored at once by this shorter distance, by the softer character of the rock, by the greater cheapness of labor and all

sorts of appliances, and by the knowledge gained by the experiences of your predecessors; that whereas Mr. Burleigh expended many thousands of dollars before he struck ore, you will probably strike very rich mineral before you have expended twenty-five hundred dollars. Not only will the owners of every mine you strike by your tunnel, be happy to pay you a remunerative commission for the privilege of shipping ore through your exit, but you are certain to thus discover new lodes, and which by right of such discovery, belong to the owners of the tunnel. The law on this subject, is this: that the tunnel takes two hundred and fifty feet, on each side of the tunnel itself, of every lode not previously recorded; and of those lodes it strikes, which were previously recorded, it takes five hundred feet elsewhere, if any part of it can be found which is not legally claimed.

The Marshall Tunnel, in running about a thousand feet into Leavenworth Mountain, has thus already discovered and appropriated five new lodes.

Where for purposes of ventilation, or for any other purpose, shafts are requisite, experience proves, that they can be made more economically, up from the tunnel, than they can be sunk down from the top of the mountain.

I will illustrate the vast economy of tunnels over shafts, again, in this way.

To work by shaft alone, is as if to get the money out of the First National Bank over the street there, you were to go through the roof of the bank edifice down into the vault. To work by tunnel, on the other hand, is as if all the twenty national banks of this city, were on the same street, and on the same side of the street, and you were to enter the vault of this first bank from State street, instead of from the roof, and so pass through the vaults of all, and empty all as you go along.

MILLS AND MILLING.

Question. What are the mill conveniences at Georgetown, and what is the cost of Milling?

MR. MCCOY. Aside from the Brown Company mill on Brown Mountain, there are the German Reduction Works, which were in the hands of Huepeden & Co., when I was there, and which are now worked by Palmer & Nichols; Collom's Mill; Wilson & Cass' Mill, now in the hands of Martine & Kurtz (thongh this is rather for

working gold ores) and Stewart's Mill, in lower Georgetown, and Professor Hill's works at Black Hawk.

The price prevailing when I was on the mountains, was thirty-five dollars a ton. Since I came away, the price has been reduced to twenty-five dollars. When Airey's furnace is completed, Stewart expects to reduce still further; and still further again, when the mountain railway is completed. As to milling expenses, so in every other respect, the day of high prices is over; and you are taking to mining at that turn of the tide which leads on to fortune.

Aside from these mills, which I have mentioned, which are full reduction and refinery works, there are mills which perform the partial process of concentrating ores. That is, they throw out all the gangue rock, and reduce the bulk to precious and base ores proper; and so effect a great saving, when you wish to send away to reduction-works elsewhere. So successful is the Washington Mill in thus concentrating ores, that the Terrible Company is about to erect one of the same character, about a mile and a half above your mines; the Lebanon Company had begun such a mill less than a thousand feet below you; and Snyder's mill, which immediately adjoins your properties, must be now nearly completed.

If the terms of the Georgetown mills do not suit you, you can send your ores to Professor Hill's at Central City; to very good mills in San Francisco; to the admirable works now being constructed at Omaha; or to the Adams-Smith Smelting and Refinery works, on Jefferson street, in this city, where they are now working ore very profitably from Utah; or you can send, as some do, to Newark, New Jersey. Mr. Old, of the Terrible, sends all his first-class ores to England; where he receives competing bids from some thirty different mills.

English capital, I have reason to know, will soon erect fine reducing mills, at Golden City, or Denver.* Works on a large scale are in course of construction at St. Louis; and unless Chicago intends to let the vast trade of the mining towns of Colorado, Utah, Idaho and Montana, pass, without any effort at a division, to St. Louis, excellent and extensive reduction-establishments must soon be erected here.

But wherever you send your ores, in no case would I advise this company to build reduction-works of their own. I notice with approbation and pleasure that your plan of organization does not provide for the erection of mills.

* See letter in "Supplementary" matter from William Cope, Esq., of London.

THE PRESIDENT. We have talked that over among ourselves, and we not only do not provide for mills, but we are resolutely set against them; and we are glad to hear that the result of your observations approves our policy on that branch of the subject.

MR. MCCOY. The result of my observations in this regard is, that of all the mistakes which mining companies have ever made, the one great fatal mistake is to go into the mill business. Ten millions are said to have been sent to Colorado alone from which no dividend has been received. I was curious to know what had become of all this money. I found that very little of it was spent on mines; and that nearly all of it was wasted on mills. Such crazy extravagancies, and all from want of true mining knowledge, again, were probably never before committed by sane men in the name of business. To adopt somebody's expensive process for frying, roasting or stewing precious ores, which had never been tried; to appoint as agent, some rich director's scape-grace of a son, who ought to have been tried, and sent to the penitentiary—this was the history, not of one company, but of dozens of companies. It is true (they seem to have said)—it is true that our inventor knows as little about practical milling, as the lunatic in Swift did about extracting sunbeams from cucumbers. It is true that the dissipated youth we have appointed as our agent, knows as much about either milling or mining, as a mule does about mathematics. But only give them time enough, and money enough, and, like a pair of Darwin's monkies, they will "develop." And what a development! The mills of the gods grind slowly; but these mills do not grind at all. Such agents have all gone to the bad: their works are still above ground, it is true; but they are as dead as so many Silurian fossils. To call them monuments of folly, does not do them justice. Solomon's three-ply expression alone is adequate to the facts: "The foolishness of fools is folly." For neither the earth beneath, nor the waters under the earth, nor the bottomless pit itself, has such an insatiable maw as these reduction-works have opened wide to swallow the capital and earnings of mining companies. When I saw these huge edifices and their machinery, all along the creek at Central City, and Nevada City, and heard their history, I said these ravenous and all-devouring mill-concerns and their processes are to mining companies, in reality and in fact, what the wind-mills were to Don Quixote—so many monstrous and diabolical giants.

By this I do not mean that I would decide not to ultimately put up works for concentrating ores. Nor do I mean that smelting and refining processes, with those to whom this is a specialty, may not be made very profitable. On the contrary, Professor Hill, at Central City, and others, make them immensely profitable. And certainly your Company has a mill-site and water-power, so ample and so admirably located, that you may sell it for a large sum. What I do mean is, that it is better that the shoemaker stick to his last, and the mill-man to his mill, and the miner to his mine; and that it is an element of strength in this company, and it argues good judgment founded on the mistakes of other companies, that you have decided to set your faces like flint against investing any part of your capital or earnings in reduction-works. As the man replied who was asked, if he ever went a-cat-fishing? "No," he answered: "when I go a-fishing, I go a-fishing; and when I go a-catting, I go a-catting; but I am not such a fool as to go a-cat-fishing."

NECESSITY OF CAPITAL.

Next to a waste of capital on all sorts of machinery and processes in the way of mills, I found that another great cause of failure with companies, was employing too little capital in working their mines. And this suggests another common form of error which prevails in regard to mining, and of which I will now speak. It shows itself on every hand in this shape, and you yourselves have probably heard it many times. A man says, and at first sight it seems to be very plausibly put—"If there is all this money in this mine, as your figures represent, why is it that you come to Chicago for money? Why do you not take the money out of the mine itself?"

Preposterous as this way of putting it really is, it is still very common, and the most amusing part of the performance is this, that the speaker does not seem at all conscious that he is uttering anything that is ridiculous or absurd.

The sophism consists in the fact there is really no money proper in a mine at all. There is only the material out of which money is made. Silver and gold-bearing ores are indeed nearer to coin than leather or cotton or wool; but still it requires much handling, and many appliances, before it is available as money. There may be ten thousand acres of land, out of which tens of thousands of dollars

might be made every year. And yet without money to buy, to plant, and sow, and reap, and market; the owner of all these broad and fertile acres may starve of hunger.

This brings me to repeat, what I have said before, that mining, even in the case of silver and gold, is a branch of manufactures; and without capital to work them, the owner of a hundred mines, might be in want of a breakfast. And if it be true, as has been asserted, that most of the prospectors who went to California are still poor, this constitutes no argument whatever against the value or profitableness of mines; but it is only another striking proof that the raw material is not the only requisite to carry on any branch of manufactures. Moreover, it is a fact notorious, that no class of mounied men in America are so forward to invest in good mining properties, as the capitalists of California. To purchase bullion, and to make advances to mill-men and miners who produce it, is a part of the regular and legitimate business of all corporate and private banking-houses on the Pacific coast; while the Bank of California itself, an institution of five millions of capital, has invested largely in the stock both of the Bullion Refinery of San Francisco, and the Union Mill and Mining Company of Nevada. And finally in answer to the statement that most of the California gold-seekers still remain poor, note well the significance of the fact, that Captain Richardson, is an old California pioneer, who not only achieved an ample fortune for himself, but such is his conviction both of the permanent native wealth of our mines, and of their greater profitableness when they shall have the advantages of the skill and economy of mining science, that he offers two hundred and fifty thousand dollars of real estate in New York, if Chicago will furnish land and erect buildings, to found an institution after the pattern of the schools of mines in Europe.

Mining not only requires capital, but the more capital there is invested the better. The larger the quantities of ore you handle, the greater will be your profits. I was witness to the fact, for instance, that when the mills in Georgetown were charging the owners of small quantities of ore, thirty-five dollars a ton for reducing it, the Terrible Company, which had two hundred tons of ore, got it reduced for twenty-seven dollars a ton.

In mining, as in every other business, the amount of capital you have in it, determines whether you are a huckster, a retailer or a wholesale man. You can do so small a business, for instance, as to

carry your own ore to mill in a basket; or you can do so large a business, that you may charter a hundred railway cars, and send a thousand tons to Swansea.

To illustrate this phase of the subject again. There are as good fish in the sea, you say, as ever were caught. And although Dr. Johnson says that "angling is a stick and a string, a worm at one end and a fool at the other;" yet there are many men who are foolish enough to eat fish, and without meaning any disrespect to that venerable moralist, I have to confess that I paid seventy cents for a breakfast of brook trout this very morning. Now, no fish would ever be caught at all, without this investment of capital. Furnish the man, the stick, the string, and the hook, and still there will be no fish. Spitting on the hook wont catch fish. Swearing at them, old anglers declare, drives them away. You must have bait. And without the bait of a few thousand dollars, to work it, a very rich mine might not be of as much worth to man as a single red herring.

The more men, the more hooks, the more bait, you now perceive, the more you make by fishing. A single angler on our docks will sometimes spend half a day in catching enough perch to make him a dinner. Two or three men with a boat and nets will go out a mile or more, and catch lake trout and pickerel for the hotels. But instead of first fishing for minnows, to afterwards catch suckers, in mining, this Company, by employing a considerable amount of capital from the outset, will imitate rather the greater fishermen who go down to the sea in ships, and, as Dryden says, sit "upon a rock and bob for whale."

PRICE OF LABOR.

Question. What is the price of labor at the Georgetown mines?

MR. MCCOY. Labor which used to be four and five dollars, was about three and a half when I went there; but now is obtained in plenty at three dollars. This is for ordinary good miners. Deep underground men, of great experience, and capable of acting as foremen, get four or five dollars.

TRAMWAYS.

Question. Will you please give us an idea of the working of what are called tramways.

MR. MCCOY. Well imagine a telegraph wire to be as thick as an inch rope, and to run over uprights three times as high. Picture two of these running up and down from the shaft-house, on the top of the mountain, to the ore-house at the bottom. Imagine two iron kettles in the shape of a revolutionary cocked hat upside down, and capable of holding a ton of ore. One of these kettles, or cars, or cocked hats, you see coming down on one cable, full of ore; and the other old revolutionary, empty, you see on the other cable going up. Thus you have an idea of the tramway system, which is now being introduced as a more economical and quicker-moving substitute, for the plan of packing ores down a mountain by jacks, or hauling it in wagons by mules. I can well believe the statement that a tramway, eighteen hundred feet long, at the Comstock lode, will reduce these expenses to twenty cents a ton. Both the Brown Company and the Terrible Company have them in most successful use. When I saw these aerial ore-cars careering at so great a height, so easily and so nearly naturally, they recalled a line in Macbeth, almost like the rocky mountain raven himself:

The crow
Makes wing to the rooky wood.

COST OF TRAMWAYS.

Question. What is the cost of these tramways?

MR. MCCOY. I understood that the Brown Company tramway cost them about six or seven thousand dollars; but that the same could now probably be constructed for three thousand. And to make a remark of general application I think it might be said that all machinery and appliances are gradually coming down, and probably would not cost more than half as much now, as they did when these Georgetown mines were first worked.

FULL NECESSARY COSTS.

DIRECTOR. Will you please state what per ton, are those costs which are necessary, of producing silver bullion from the ore of these mines?

MR. MCCOY. The only necessary costs, are the expense of mining proper (that is of extracting the ore out of your shaft or tunnel) of hauling to the reduction works, and of reducing. After you have

fairly opened your mine, the expenses per ton decrease as you go down; because you handle more mineral, and less country rock. But even then they vary according to the character and size of the different veins. The following computation is founded on notes taken from those who have worked Sherman mountain mines near yours, and I think it more likely to be found several dollars too high, rather than one dollar too low:

Mining, per ton, say.....	\$16 00
Hauling, per ton, from your tunnel, say.....	2 50
Milling, per ton, say.....	25 00
	— \$43 50

The expence of shipping the ore off to reduction-works, in other States, or in distant countries, is entirely avoidable. Nor need you either pay for the milling, or loose the time in waiting for that process. As soon as you have excavated your ore, and hauled it to Stewart's works, you can sell it, at high prices, and get your money, cash in hand. Professor Hill's works, at Black Hawk, less than twenty miles distant, will buy the ore, and pay you the cash, the moment it is delivered. Agents from mills abroad are beginning to buy ores at the mines. I saw a mining engineer receive a dispatch from London, commissioning him to buy one hundred thousand dollars worth of ore. The Smelting and Refinery works in Chicago, buy their ores, I understand, in Utah, then bring them here and work them on their own account. Indeed, good mills are being built so rapidly, and ores are in such sharp and increasing demand, both for domestic use and for foreign exchange—that it will probably soon come to this, that the miner will trouble himself neither with milling, nor with hauling to mill; but will sell his ores for cash on his dump-pile.

A LADY STOCKHOLDER.

You have asked me several questions; I would now like to ask you one. I am informed that Miss Nilsson has applied to Baron De Palm, one of your Directors, to secure for her some of this stock. Am I informed correctly?

BARON DE PALM. You are.

MR. MCCOY. That being so, I am of the opinion that she will find this the most remunerative investment she ever made. And

these mingled associations of business and of art, remind me that the wife, either of Day or of Martin, of the great shoe blacking firm of London, is said to have boasted, that "her husband kept a poet on purpose" to write their advertisements. And since the International Mining and Exchange Company have now engaged a celebrated *comptatrice* of their own, and since, wherever any one is called upon to tell a story, or to sing a song, the privilege is always accorded to him, to call out his successor; I beg now to express the hope that the least of all speakers, will be followed by the sweetest of all singers, and that Miss Nilsson will favor this Company with a song. And to make it the more gracious, let it be given on the stage of the Company's own properties. And to be in keeping with the sublime beauties, and the glorious inspirations of that scene, let it be (if the singer please) that famous Swiss mountain song of Freedom and of Glory, the *Ranz des Vaches*. And since again, it is certain that this Company, by its tunnel will discover several new lodes in Sherman Mountain, if it were within my province (which it is not) I would throw out this further hint: that the first three lodes so discovered be named, in order and succession, as follows: Prima Donna—Christina—Nilsson.

CONCLUSION.

Mr. President and Gentlemen: In compliance with your resolution, and in answer to your interrogatories here, I have now touched upon such of my observations in Colorado, as I supposed would bear somewhat upon the line of your interests and wishes. And having now done so, it will afford me great gratification if any of these words of mine shall conduce to the prosperity of so excellent and so promising a company. For, indeed, when I consider the high character of your mines, the extreme favorableness of their locality, the experience and good judgment shown in the constitution, the by-laws, and the plans of your organization, I regard this as the most wisely-concocted mining scheme, of which I have any acquaintance; a company which, as it appears to me, combines every available element of strength, and steers clear of every avoidable element of weakness; a company, finally, which can now hardly fail of achieving brilliant successes, not only for themselves, personally, but for the great mining interests of the country; and of acquiring a most honorable fame in the commercial circles both of America and of Europe.

And this success becomes doubly assured in my mind, when I reflect that to the great and inexhaustible riches of these mines themselves, Colorado adds every other collateral mining resource which is ever supplied by nature; and which, united, will soon attract to their vicinity all the other desirable advantages of a numerous population,—I mean, that giant strength and fertility of soil, which is capable of producing, so abundantly and cheap, every necessary of life in the way of food; and of sustaining even to fatness by its spontaneous grass-crops the cattle on a thousand plains—that wonderful salubriousness of climate which breathes even into the invalid and consumptive the very breath of life itself—and last, but not least, those beauties so sublime, and sublimities so august, in the way of mountain scenery;—and all which combined, promise soon to advance the Territory of Colorado to a proud place, not only among the Empire States of this National Union, but among the great granaries and treasure-vaults of the world!

